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SMART BUS TICKET SYSTEM USING QR CODE IN ANDROID APP

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Abstract- *Public transport is the cheapest and has therefore, always been popular with the masses. The advancement in transport system has been increasing in day-to-day life. The transport plays a vital role in individuals life, in making it efficient we are introducing an android application. The android application has the bus ticket system using QR reader. The android mobile has a great part in human life, it helps the people to be stay connected with web. In this project, we are proposing QR reader for bus ticketing system. The QR code (Quick Response code) becomes popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcodes. The proposed system provides web application as well as android application for the passengers to buy their tickets online. During the travel time, we can get the ticket by entering their location details and make payment. Message alert will be notified to the passenger. By this application, we can minimize the usage of paper (Tickets) and there will not be any problem in getting change.*

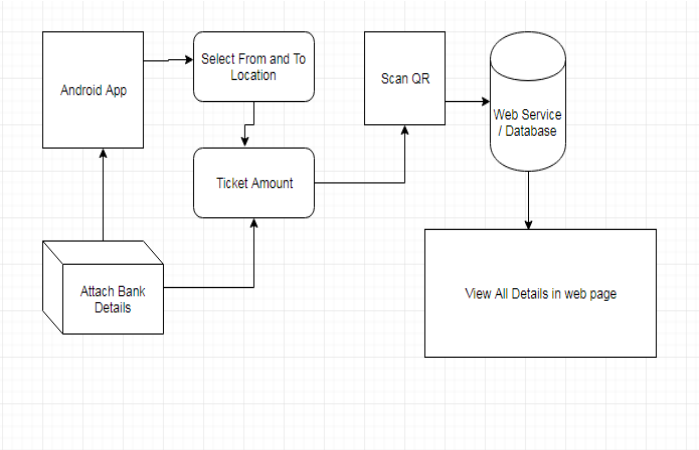
Keywords- Smart bus ticket, QR code, android bus ticket, web application;

I. INTRODUCTION

Buses are the foremost wide used public transportation in many cities nowadays. To improve the standard of Bus Company, a period system that can monitor and predict the rider Flow of the running buses is useful. Here, rider Flow denotes the number of on-board passengers of a bus that varies over time and house. The rider flow will partly mirror the collective human quality on a route and therefore the quality of bus service in term of comfort. From a programming perspective, it tells you the way many folks travel or need to travel on a route. This data will guide the operators to allot and schedule the route and timetable dynamically in fine granularity. Current follow in Bus Transit System operators demonstrates that manual data-collection efforts area unit expensive and usually applicable solely in little scale. The utilization of automatic data-collection systems grow speedily and show nice potential. Automatic Fare assortment (AFC) devices that may record payments of rider's exploitation revolving credit, and a GPS embedded On Board Unit (OBU) that may track the bus area unit wide deployed. With the mature of massive knowledge systems, we've got the chance to estimate and predict the rider flow of each bus in urban wide BTS. To depict the matter additional clear, we will think about a concrete example as shown in Figure one. Many buses operate in a line of route wherever we tend to assume that no passing happens among them on their whole journeys. Passengers get on and off at every station, that changes the rider flows of the buses over time and site. The solid lines and circles illustrate the segments and stations that the buses already travelled before current time, and therefore the dash lines represent the rest of the trips they'll travel. the matter is that given the time data of AFC dealing records and therefore the OBU traces of the buses, the way to estimate the quantity of riders on every bus and how to predict the quantity within the remainder of the trip within the near future. In the general way, every bus is controlled by a conductor. The conductor will collect money from each passenger and issue ticket. Initially, printed papers or tokens are used as tickets. Nowadays, handheld machines are used to print tickets. This system has many disadvantages. The passenger have to carry the ticket till the end of travel, the conductor should ensure that everyone has got the ticket,the time taken for ticketing is comparatively more and more amount of paper is needed to print the Ticket. Nowadays conductors are trained to operate the handheld ticketing machine. For example, if a passenger wish to travel in bus. He has to carry money with him. Then conductor will collect the money and he will give ticket. This has to repeat for all passengers. This will take more time and waste of human resource as well as energy. Even handheld ticketing machine is comparatively slow and need trained person to operate it.

In Existing system RFID Reader is used to read the RFID tag but destination should be entered by passenger in keyboard , So that amount will be debited automatically from the tag. Here if once destination is arrived, bus stops automatically and intimate with buzzer sound. Fairly such arrangement consumes more time in case of accessing of tag by every individual, so to overcome that, implementation of ticketing system without access is developed in this proposal with addition of application to transfer information about accident occurrence. In proposed method, we are introducing QR reader. Here, we will create one android application for select travelling route and generate amount. After generating amount, user has to read that QR image. Then automatically it will send amount from our bank details or wallet. Each conductor having one QR reader and after reading that values automatically it will store in database. Then user will get message for travelling ticket.

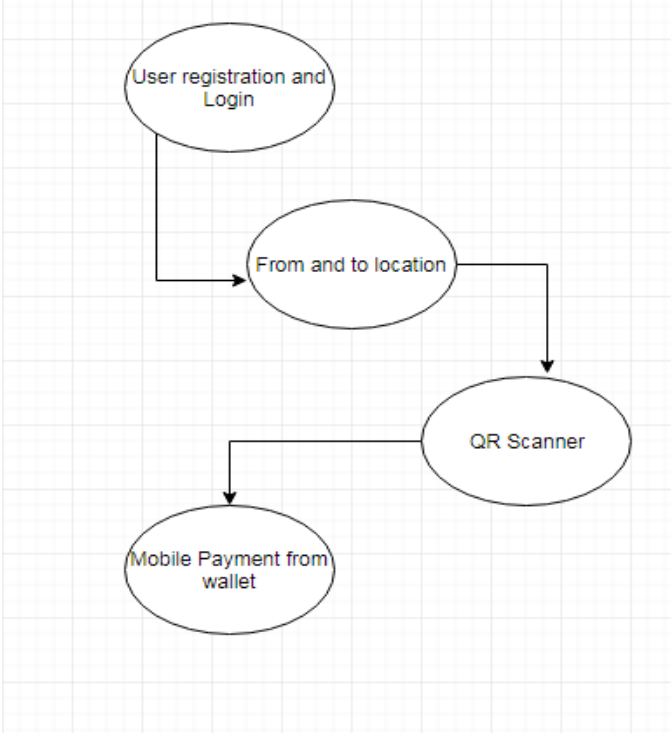
II.SYSTEM ARCHITECTURE



Smartphone have been widely integrated with GPS receiver, which may provide accurate location information of vehicles without cost increase. Traditionally, LBS applications obtain vehicle locations then using the Hypertext Transfer Protocol (HTTP) protocol uploaded to central servers with a fixed frequency. In this paper, we exploit an intelligent strategy of GPS sensing and transmitting. Explicitly, we implemented a platform to collect real-time GPS data from vehicles. A common Android Smartphone serves as a GPS sensor in a vehicle. Client Application software is designed to generate GPS location updates with adaptive time stamps once it executed. In the final comparison, MQTT push technology is introduced into GPS transmission in order to effectively reduce mobile traffic. One of the challenges faced by today's Internet of Things (IoT) is to efficiently support machine-to-machine communication, given that the remote sensors and the gateway devices are connected through low bandwidth, unreliable, or intermittent wireless communication links. In this paper, we quantitatively compare the performance of IoT protocols, namely MQTT (Message Queuing Telemetry Transport), CoAP (Constrained Application Protocol), DDS (Data Distribution Service) and a custom UDP-based protocol in a medical setting. The performance of the protocols was evaluated using a network emulator, allowing us to emulate a low bandwidth, high system latency, and high packet loss wireless access network. This paper reports the observed performance of the protocols and arrives at the conclusion that although DDS results in higher bandwidth usage than MQTT, its superior performance with regard to data latency and reliability makes it an attractive choice for medical IoT applications and beyond. This paper investigates the problem of estimation of time-dependent passenger origin-destination (OD) matrices in congested transit networks where real-time updated passenger counts and prior OD matrices are available. A bi-level programming model is proposed for the dynamic estimation of passenger OD matrix. The upper level minimizes the sum of error measurements in dynamic passenger counts and time-dependent OD matrices, and the lower level is a new schedule-based dynamic transit assignment model that can determine simultaneously the dynamic average travel costs and route choices of passengers in congested transit networks. The lower-level problem can be formulated as a variation inequality problem. A heuristic solution algorithm is adapted for solving the proposed bi-level programming model. Finally, a numerical example is used to illustrate the applications of the proposed model and solution algorithm. QR-Code : A QR Code(it stands for Quick Response) is a mobile phone readable bar code that can store website URL's, plain text, phone number, Email addresses and pretty much any other alphanumeric data. Those little jumbled squares were originally designed for track cars through manufacturing process but today, quick response(QR) code can be found everywhere from assembly line to warehouses. Think of them as barcodes on steroids, more information in less space. QR codes are 2D barcode that can store more than 4,000 alphanumeric characters in a limited horizontal and Vertical space. A traditional linear (1D) barcode can hold roughly 20 horizontal characters. QR codes are also easy to use and can be easily read from any direction with a simple smart phone application or dedicated barcode scanner. QR codes are magical because they can read from any orientation. The squares are position dedication patterns, which allows for 360 degree, stable, high-speed reading. This paper demonstrates a new unconscious sensing system for bus location. Our system is a new type of application based on participatory sensing systems. However, it can perform sensing operation without users' operation. Therefore, we can employ the mechanism to realize practical application such as bus location systems. Our sensing system consists of a beacon device, a Smartphone application and a cloud service. The beacon device is installed on a bus to activate the Smartphone application. The Smartphone application can upload a bus location to the cloud service when the Smartphone application detects the beacon device. The cloud service manages the bus location and distributes them for Smartphone applications. The demonstration shows a prototype system for a bus location system based on the new participatory sensing mechanism. Advanced traveler information systems (ATIS) are one component of intelligent transportation systems (ITS), and a major component of ATIS is travel time information. Global positioning system-based automatic vehicle location (AVL) systems have been adopted by many transit agencies for tracking their vehicles and predicting travel time in real time. It is a very important subject to improve the precision and reliability of the prediction model which can attract additional ridership, reduce passengers' anxieties and waiting times at bus stop, and increase their satisfaction. Furthermore, it can promote the development of city public transportation. This paper presents an improved approach to predict the public bus arrival time based on historical and real-time GPS data.

After analyzing the components of bus arrival time systematically, the bus arrival time and dwell time at previous stops are chosen as the main input variables of the prediction model. At first, the algorithm of data interpolation and processing is designed to get the real-time GPS data as the input variables of the prediction models. Secondly, the statistical model is obtained based on the historical data of average running time of each link and dwelling time of each stop at given time-of-day and day-of-week, respectively. Thirdly, a hybrid dynamic prediction model is proposed to predict the bus arrival time. Finally, Actual GPS data from bus route 244 located in Shenyang, CHINA are used as a test bed. The index of Mean Absolute Percentage Error (MAPE) is used to evaluate the three models. The results show that the improved model outperforms the historical data based model in terms of prediction accuracy.

III. WORKING PROCEDURE



The Modules used are User registration, Location Selection, Web Service, Database, and Classification

User registration:

We will create one android application for users. Users can register them in android application. Then user can add bank details with them profile. Users can select from and to location using that android application when users are going to local or government bus and user can generate amount according to that bus.

Location Selection:

A user has to select from and to location and it will generate fare details for based on that location. Then we have enter the count of passengers and we get total amount. After that, we have to use QR scanner for mobile payment.

Web Service:

Web service is like connecting android application and server. Server should run 24 hours and it has to give all the details to database which data's we are getting from users. Then using SOAP protocol we can connect android application to server. If we are using SOAP protocol, it will collect all the details from android application and it will send to server.

Database:

Admin can see all the details of users like where they are rode local bus. Then admin has to analyze those details like users name, from location, to location, amount for bus fare and admin id.

Classification:

We have classified that each and every 3 hours using SVM algorithm. Because, whenever reach bus from one place to another place, it has to collect all the details from users who are all using QR scanner in bus. Then we have analyzed the data like when and where we can give another or extra bus for according to that place.

A free, open source mobile platform and Linux-based, multiprocessing, Multithreaded OS. Android is not a device or a product it's not even limited to phones you could build a DVR, a handheld GPS, an MP3 player, etc. Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language. Makes mobile development easy, Full phone software stack including applications, Designed as a platform for software development, Android is open, Android is free and Community support

Features:

Application framework enabling reuse and replacement of components, Dalvik virtual machine optimized for mobile devices, Integrated browser based on the open source Web Kit engine Optimized graphics powered by a custom 2D graphics library; 3Dgraphics based on the OpenGL ES 1.0 specification (hardware acceleration optional)SQLite for structured data storageMedia support for common audio, video, and still image formats(MPEG4, H.264, MP3, AAC,

AMR, JPG, PNG, GIF)GSM Telephony (hardware dependent) Bluetooth, EDGE, 3G, and Wi-Fi (hardware dependent)Camera, GPS, compass, and accelerometer (hardware dependent)Rich development environment including a device emulator, tools for debugging, memory and performance profiling, and a plug in for the Eclipse IDE. In this fast life, everyone is in hurry to reach their destinations. In this case waiting for the buses is not reliable. People who rely on the public transport their major concern is to know the real time location of the bus for which they are waiting for and the time it will take to reach their bus stop. This information helps people in making better travelling decisions.

This paper gives the major challenges in the public transport system and discuses various approaches to intelligently manage it. Current position of the bus is acquired by integrating GPS device on the bus and coordinates of the bus are sent by either GPRS service provided by GSM networks or SMS or RFID. GPS device is enabled on the tracking device and this information is sent to centralized control unit or directly at the bus stops using RF receivers. This system is further integrated with the historical average speeds of each segment. This is done to improve the accuracy by including the factors like volume of traffic, crossings in each segment, day and time of day. People can track information using LEDs at bus stops, SMS, web application or Android application. GPS coordinates of the bus when sent to the centralized server where various arrival time estimation algorithms are applied using historical speed patterns.

IV.CONCLUSION

The paper summarizes the current issues in bus ticketing system. To overcome from this, we are working towards android platform. We have identified the current gaps and open research areas. Our research will focus on these open problems and propose effective solutions for the same. This paper introduces on how to secure passenger information. To overcome the drawbacks of manual ticketing system we are using QR-Code for security purpose of passengers information in the propose system. With this experiment, there will be an increased usage of public transport , as everything can be done independently .There is no need of any dependency on the conductor while entering into the bus for collecting the ticket, all we need to do is get digitalize by using the scanner available in the mobile device and scan the QR code. This would eventually make people use the transport very often. People need not wait for a long time without knowing when the bus would come; rather they can enter the destination and check for the available buses for their route.

Along with the availability the count of passengers travelling in the bus will also be displayed which can be used by the passenger to analyze the crowd in the bus and take the bus accordingly. In case of unavailability of the bus the traveller can opt for another means of transport instead of waiting for a long time. Also by analyzing the crowd in each bus between particular hours, in case if the crowd in the bus exceeds the number of passengers who can be seated in a bus, then it means some other arrangement had to be made at that particular hour from that source to destination, which can be solved by the transport department. QR -Code technology would be more easily integrated into existing public transport system infrastructures.

QR-Code provides all the features which make it a valid technology for mass public transport ticketing: contactless transactions at high speed, stability and simplicity. The proposed solutions based on combinations of standards and technologies using current contactless infrastructures. Our proposed application will be feasible for novice users as well as professional users. The proposed application will be used for the booking a ticket without standing in queues for travelling through bus and it‘s easy for ticket checker to check whether ticket is valid or invalid. This android application reduces the manual work of both ticket bookers and ticket checkers. It is basically the transition from a manual to digital system for ticket booking of as well as ticket checking of bus. Thus the problem associated with bus ticket booking as almost solved. If aforementioned project is incorporated with present ITS system then it will be manifest to figure out the passenger movement at each stops. Depending on passenger density at a circumstantial time the authority can assign ample number of buses for that route and when passenger count is less the unnecessary stops can be cancelled.

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